Appln. No. 09/599,150 Docket No. 22-0133

AMENDMENTS TO THE CLAIMS

1 (Currently Amended): A communication satellite comprising:

means for receiving packets of uplink data for transmission through multiple downlink beams to multiple hop locations corresponding to multiple terrestrial cells;

a multiple beam downlink antenna comprising a plurality of radiating elements, each of which is responsible for generating an independently controllable downlink beam to one of an equal plurality of terrestrial cells that are contiguously arrayed in a beam laydown pattern covering a terrestrial region;

a self addressed packet switch for routing uplink data packets to a memory, wherein each uplink data packet contains destination information; ~~the uplink data destined for at least one of a first and a second downlink beam hop location;~~ and

a switch that directs a waveform derived in part from each ~~the~~ uplink data packet to a selected radiating element of the ~~a~~ multiple beam downlink ~~array~~ antenna in response to a hop selection signal derived from the destination information in the packet; ~~wherein~~

wherein the multiple beam downlink ~~array~~ antenna directs the waveforms derived from the uplink data packets to the appropriate destination terrestrial cells; ~~at least one of the first downlink beam hop location and the second downlink beam hop location.~~

and wherein the switch also provides a color control signal to each downlink beam, to minimize interference between downlink channels.

2 (Currently Amended): The communication satellite of claim 1, wherein the memory comprises queues assigned to respective hop locations. ~~the first and the second downlink beam hop location.~~

3 (Original): The communication satellite of claim 1, wherein the memory comprises queues distinguished by beam hop location and priority.

4 (Original): The communication satellite of claim 3, wherein the memory comprises queues further distinguished by a code rate.

5 (Original): The communication satellite of claim 4, wherein the queues are distinguished by a plurality priorities, a plurality code rates, and a plurality hop locations.

6 (Cancelled)

7 (Currently Amended): The communication satellite of claim 1, wherein the multiple beam downlink ~~array~~ antenna comprises ~~at least a first radiating element for the first downlink beam hop location and a second radiating element for the second downlink beam hop location, the first and second radiating elements feeding~~ at least one reflector fed by the radiating elements.

8 (Currently Amended): The communication satellite of claim 7, wherein the ~~first and second~~ radiating elements are feedhorns.

9 (Currently Amended): A data routing subsystem for a communication satellite, the subsystem comprising:

means for receiving packets of uplink data for transmission through multiple downlink beams to multiple hop locations corresponding to multiple terrestrial cells;

an inbound module accepting demodulated uplink data, the inbound module including a routing table that stores queue tags specifying downlink beam hop locations for the uplink data;

a switch having an input port coupled to the inbound module;

an outbound module coupled to an output port of the switch, the outbound module including a memory for storing the uplink data according to the downlink beam hop locations; and

a multiple beam array antenna coupled to the outbound module, the multiple beam array antenna comprising a plurality of ~~first~~ feed elements assigned to respective ~~a first downlink beam hop location and a second feed element assigned to a second~~ downlink beam hop locations, wherein the downlink beam hop locations correspond to an equal plurality of terrestrial cells that are contiguously arrayed in a beam laydown pattern covering a terrestrial region.

10 (Currently Amended): The data routing subsystem of claim 9, wherein the ~~first and second~~ feed elements are feed horns.

11 (Original): The data routing subsystem of claim 9, wherein the queue tag further specifies code rate for the uplink data.

12 (Original): The data routing subsystem of claim 11, wherein the queue tag further specifies priority for the uplink data.

13 (Original): The data routing subsystem of claim 9, wherein the routing table additionally stores routing tags indicative of at least one switch output port.

14 (Original): The data routing subsystem of claim 9, wherein the routing table is addressed with an address included in the uplink data.

15 (Original): The data routing subsystem of claim 14, wherein the address is at least one of a VPI and VCI field in an ATM cell.

16 (Original): The data routing subsystem of claim 15, wherein the routing additionally stores a replacement address for the uplink data.

17 (Currently Amended): A method for communicating data through a communication satellite, the method comprising:

receiving packets of uplink data for transmission through multiple downlink beams to multiple hop locations corresponding to multiple terrestrial cells;

looking up a memory queue indicative of hop location using an address included in each uplink data packet.

storing the uplink data packets in the memory queue;

retrieving the uplink data packets and preparing for each a waveform to be transmitted;

selecting a feed path for each ~~the~~ waveform according to the hop location;

selecting a color control signal for each downlink beam, to minimize interference between downlink channels and

transmitting the waveforms using a multiple beam downlink ~~array~~ antenna.

18 (Currently Amended): The method of claim 17, wherein looking up comprises looking up a queue tag for each ~~the~~ uplink data packet.

19 (Currently Amended): The method of claim 18, wherein the step of looking up further comprises looking up a queue tag specifying the priority for each ~~the~~ uplink data packet.

20 (Currently Amended): The method of claim 19, wherein the step of looking up further comprises looking up a queue tag specifying a code rate for each ~~the~~ uplink data packet.

21 (Currently Amended): The method of claim 17, further comprising the steps of looking up a routing tag for each ~~the~~ uplink data packet and switching the uplink data packet to the memory using the routing tag.

22 (Original): The method of claim 17, wherein selecting a feed path comprises ~~switching~~ a ferrite switch.